

RECEIVED

MAY 31 2002

TECH CENTER 1600 2900

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau(43) International Publication Date  
27 September 2001 (27.09.2001)

PCT

(10) International Publication Number  
**WO 01/70822 A3**(51) International Patent Classification<sup>7</sup>: **C08F 8/32**,  
C08G 81/02

(21) International Application Number: PCT/US01/09313

(22) International Filing Date: 23 March 2001 (23.03.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
09/532,499 23 March 2000 (23.03.2000) US(63) Related by continuation (CON) or continuation-in-part  
(CIP) to earlier application:  
US 09/532,499 (CIP)  
Filed on 23 March 2000 (23.03.2000)(71) Applicant (for all designated States except US): **BRIDGE-  
STONE CORPORATION** [JP/JP]; 10-1, Kyobashi  
1-Chome, Chuo-Ku, Tokyo 104 (JP).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **WANG, Xiaorong**  
[CN/US]; 1788D Amber Hills Drive, Akron, OH 44313  
(US). **FOLTZ, Victor** [US/US]; 2895 Premae Drive,  
Akron, OH 44312 (US). **HOGAN, Terrence** [US/US];  
2200 High Street, Apartment 369, Cuyahoga Falls, OH  
44221 (US). **COLE, William** [US/US]; 6595 FairlandRoad, Clinton, OH 44216 (US). **MASHITA, Naruhiko**  
[JP/JP]; Bridgestone Corporation, Mat'l. Dev. Dept.,  
Chem. & Ind. Prods. Div., 1 Kashio-cho, Totsuka-ku,  
Yokohama-shi, Kanagawa 244 (JP). **WAKANA, Yuichiro**  
[JP/JP]; Bridgestone Corporation, Mat'l. Dev. Dept.,  
Chem. & Ind. Prods. Div., 1 Kashio-cho, Totsuka-ku,  
Yokohama-shi, Kanagawa 244 (JP). **UTSUNOMIYA,  
Tadashi** [JP/JP]; Bridgestone Corporation, Mat'l. Dev.  
Dept., Chem. & Ind. Prods. Div., 1 Kashio-cho, Tot-  
suka-ku, Yokohama-shi, Kanagawa 244 (JP).(74) Agents: **HORNICKEL, John** et al.; Bridgestone/Fire-  
stone, Inc., I.P. Law Dept., 1200 Firestone Parkway, Akron,  
OH 44317 (US).

(81) Designated States (national): JP, US.

(84) Designated States (regional): European patent (AT, BE,  
CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC,  
NL, PT, SE, TR).

Published:

— with international search report

(88) Date of publication of the international search report:  
24 January 2002For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: PROCESS FOR FORMING CENTIPEDE POLYMER GELS

(57) Abstract: A process that enables the formation of a high damping, soft polymer gel includes reacting a maleimide copolymer with a maleated polyalkylene and an alkyl diamine under substantially dry conditions sufficient to form a polyalkylene-grafted maleimide copolymer product which then is dispersed with an extender sufficient to form the gel. The steps can be carried out sequentially in a high shear mixer without the need for intermediate steps of cooling and grinding the reaction product of one step before proceeding to the next.

WO 01/70822 A3



09/889966 -

## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US 01/09313

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 C08F8/32 C08G81/02

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C08F C08G C08L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

PAJ, WPI Data, EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 905 116 A (X. WANG) 18 May 1999 (1999-05-18) column 3, line 6 - line 22 column 3, line 26 - line 61 column 5, line 54 -column 6, line 5 column 6, line 45 -column 7, line 3 column 7, line 16 - line 38 column 8, line 21 - line 55 column 9, line 27 -column 10, line 13 column 11, line 5 -column 13, line 15; claims 1-23  --- -/--	1-13

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

\*A\* document defining the general state of the art which is not considered to be of particular relevance

\*E\* earlier document but published on or after the international filing date

\*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

\*O\* document referring to an oral disclosure, use, exhibition or other means

\*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*&amp;\* document member of the same patent family

Date of the actual completion of the international search

12 October 2001

Date of mailing of the international search report

26/10/2001

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2

NL - 2280 HV Rijswijk

Tel. (+31-70) 340-2040. Tx. 31 651 epo nl.

Fax: (+31-70) 340-3016

Authorized officer

Permentier, W

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/09313

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 955 329 A (BRIDGESTONE CORPORATION) 10 November 1999 (1999-11-10) page 2, line 5 - line 7 page 3, line 16 - line 44 page 5, line 54 -page 6, line 6 page 6, line 28 - line 41 page 6, line 54 -page 7, line 48 page 8, line 14 -page 9, line 2 page 9, line 23 -page 10, line 33; claims 1-26 ---	1-13
X	EP 0 955 319 A (BRIDGESTONE CORPORATION) 10 November 1999 (1999-11-10) page 2, line 42 - line 49 page 3, line 6 - line 49 page 4, line 56 -page 5, line 46 page 5, line 55 -page 6, line 50 page 7, line 12 -page 9, line 35; claims 1-25 ---	1-13
X	EP 0 955 316 A (BRIDGESTONE CORPORATION) 10 November 1999 (1999-11-10) page 2, line 5 - line 6 page 3, line 12 - line 26 page 4, line 36 -page 5, line 23 page 5, line 31 -page 6, line 27 page 6, line 47 -page 9, line 12; claims 1-23 ---	1-13
A	EP 0 955 320 A (BRIDGESTONE CORPORATION) 10 November 1999 (1999-11-10) claims 1-15 ---	1
A	EP 0 955 317 A (BRIDGESTONE CORPORATION) 10 November 1999 (1999-11-10) claims 1-21 ---	1
A	EP 0 879 832 A (BRIDGESTONE CORPORATION) 25 November 1998 (1998-11-25) claims 1-29 ---	1
A	EP 0 879 831 A (BRIDGESTONE CORPORATION) 25 November 1998 (1998-11-25) claims 1-25 ---	1
A	EP 0 924 225 A (BRIDGESTONE CORPORATION) 23 June 1999 (1999-06-23) claims 1-24 -----	1

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/09313

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 5905116	A	18-05-1999	EP	0955318 A1	10-11-1999
			JP	2000026600 A	25-01-2000
EP 955329	A	10-11-1999	US	6054532 A	25-04-2000
			EP	0955329 A1	10-11-1999
			JP	11343320 A	14-12-1999
EP 955319	A	10-11-1999	US	6204354 B1	20-03-2001
			EP	0955319 A1	10-11-1999
			JP	11343345 A	14-12-1999
EP 955316	A	10-11-1999	US	6248825 B1	19-06-2001
			EP	0955316 A1	10-11-1999
			JP	2000026599 A	25-01-2000
EP 955320	A	10-11-1999	US	6107409 A	22-08-2000
			EP	0955320 A1	10-11-1999
			JP	11343342 A	14-12-1999
EP 955317	A	10-11-1999	US	6048930 A	11-04-2000
			EP	0955317 A1	10-11-1999
			JP	11335492 A	07-12-1999
EP 879832	A	25-11-1998	US	5910530 A	08-06-1999
			CA	2237502 A1	19-11-1998
			EP	0879832 A1	25-11-1998
			JP	10316831 A	02-12-1998
EP 879831	A	25-11-1998	US	5912296 A	15-06-1999
			CA	2237453 A1	19-11-1998
			EP	0879831 A1	25-11-1998
			JP	10316812 A	02-12-1998
EP 924225	A	23-06-1999	US	6248827 B1	19-06-2001
			EP	0924225 A1	23-06-1999
			JP	11240922 A	07-09-1999